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Session 1D

Kentucky Water Resources Research Institute, University of Kentucky

WATER/WASTEWATER TECHNICIAN TRAINING INSTITUTE: THE FIRST YEAR RETROSPECTIVE

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The Center for Water Resource Studies (CWRS) and the Bowling Green Community College (BGCC) of Western Kentucky University (WKU) formed a partnership to address an anticipated Water and Wastewater Operator/Technician shortage over the next five to seven years. The Water and Wastewater Technician Training Institute (WTTI) is a joint initiative with the employment sector (water and wastewater utilities, municipalities, and/or districts), state primacy agencies, technical assistance and trade associations to refine an industry needs driven curriculum that utilizes on-line course delivery to provide options for both traditional and non-traditional students. This paper will review the accomplishments and the lessons learned by this program over the first year of operation.

The WTTI program requires sixty-seven (67) credit hours, including twenty-five (25) hours of General Education requirements, twenty-one (21) hours of Business Technology courses, and twenty-one (21) hours of Operations Track courses. The Operations Track courses can be focused toward either Water or Wastewater Operations. The program is designed to be delivered entirely online, allowing students to pursue their degree with unparalleled flexibility. The WTTI courses are delivered through an open-source Course Management System (CMS) known as MOODLE (Modular Object-Oriented Dynamic Learning Environment). The first Operations Track class, WTTI200C, Water Supply & Wastewater Control was developed and offered during the 2008 Fall Semester. As courses are developed, approval is sought for Continuing Education/Contact Hours from Operator Certification Boards in the individual states. Academic content is being provided by core university faculty with support from adjunct faculty eligible staff. All instructors involved in the program are undergoing collaborative professional development to ensure that they are receptive to the unique structure of the program.

As a demonstrably functional framework is being put in place, the program is being extrapolated to address other regional policy, academic discipline and industrial sector issues beyond the initial Kentucky and Tennessee target area. University-offered Water and Wastewater Operator Certificate Programs are being developed to fast-track students into the industry and allow current operators to reach advanced certification levels at an accelerated pace. Partnering utilities and municipalities are developing internship and cooperative educational opportunities to ensure work-based experiences for students.

Trade associations have committed to developing scholarship programs to lessen the financial burden for potential students. In addition, some individual utilities are offering tuition reimbursement for current employees who are pursuing academic degrees or certificate programs. Finally, an educational outreach program that integrates into high school science curricula is being developed. This program is aimed at recruiting young adults into the water and wastewater industry.

WATER ANALYSIS, TRAINING, EDUCATION AND RESEARCH SERVICES: A 'FARMER'S COOPERATIVE' MODEL FOR CAPACITY DEVELOPMENT

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Upon its inception, WATERS Laboratory in Bowling Green, Kentucky was envisioned as a 'farmer's cooperative' of labs. This consortium of local, state and regional private and public sector entities maximizes each partner's ability to further their goals through resource sharing.

The foundation of the lab was established in 2004 when Western Kentucky University (WKU) and Mammoth Cave National Park (MACA) of the National Park Service (NPS) entered into a Cooperative Agreement to share laboratory analytical equipment and personnel to maximize utility, productivity and scope of service. The Cooperative Agreement has resulted in the establishment of an operating environment that integrates and furthers the research, training and service components of the partners in the area of overlap pertinent to the natural resource protection mission of the NPS and the training and educational mission of WKU. This facility consolidates the research and regulatory grade environmental analytical instrumentation available to each partner and has resulted in optimal utilization of resources.

The Water Analysis, Training, Education and Research Services (WATERS) consortium espouses the following integrated goals through cooperation:

- Water Analysis: Provide high quality environmental data collection, management and analysis of drinking water, wastewater and source water to utilities, industry, researchers, government entities and the general public.
- Training: Provision of formal training and certification of field, laboratory and environmental technicians serving an immediate need for the Commonwealth of Kentucky through workshops and on-site demonstrations.
- Education: Provide hands-on work experience for university students.
- Research Services: Maximize each partnering agency's ability to further their research missions through the optimal utilization of research grade instrumentation.

This partnership permits programs to attain and exceed institutional goals for data collection, determination, analysis and visualization through coordinated collaboration and access to services traditionally beyond the resource capacities of each individual organization.

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UTILIZING A CONTENT MANAGEMENT SYSTEM FOR AN EMERGENCY RESPONSE NETWORK FOR WATER AND WASTEWATER DISTRICTS

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Following the impacts of Hurricane Katrina and then Hurricane Rita, it became apparent that even with the extraordinary efforts of utilities, water associations and the State Emergency Operations Center, the demand for resources and knowing where those resources were available overwhelmed the ability to effectively coordinate the initial response.

Realizing that utilities needed a different approach, a committee in the water community and state agencies have joined together to create the Kentucky Water/Wastewater Response Network or KYWARN with a mission to support and promote statewide emergency preparedness, disaster response, and mutual assistance matters for public and private water and wastewater utilities.

The Kentucky WARN system utilizes a content management system (CMS) called Drupal. Drupal includes the ability to add packages written and maintained in a collaborative environment. This system facilitates changes and additions to the KYWARN system. Additionally the power of the system allows for tools to be utilized with minimal cost for development.

The CMS in use includes packages to incorporate interactive mapping, inventory systems, notifications, SMS notification, authentication and sign up, tracking, and member status. Features are being developed and added to the system by the Center for Water Resource Studies. The KYWARN system has been available for membership for one year and is currently at 30 members with nine member communities having signed a Mutual Aid Agreement.

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WATER RESOURCE MANAGEMENT CAPACITY DEVEOPMENT: A SMALL SYSTEMS TECHNOLOGY TRANSFER MODEL

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The Center for Water Resource Studies (CWRS) at Western Kentucky University (WKU) promotes and facilitates a public/private sector partnership focused on the development and transfer of water resource management technologies that specifically target the small to medium sized industry market. This market includes municipalities, water and wastewater utilities and districts serving populations less than 25,000, local and state government agencies, commercial and non-profit organizations providing engineering, scientific, technical, financial, managerial and analytical services, and the industry relevant trade associations.

The size and scope of services needed/offered in this market sector tend to limit the rate of return of product development investment, and, as a result, only a few companies tend to invest in this sector. The partnership integrates small technology startup entrepreneurial firms with the end-user/target market sector and the water resource technology development capacity of the partnering universities to facilitate the translation of market need into technological concept, development, transfer and commercialization. The needs and capacity of the target market dictate a high-volume, low-margin approach to be commercially feasible, and so is typically under-served. By relying on small startup firms for commercialization, and minimizing licensing burden, the partnership promotes a technology development and transfer model process that is sustainable.

The partnership focuses on developing processes for rapid identification, development, transfer and commercialization of incremental advances in technology that have an immediate benefit on the target market. The key to success of the partnership is the adoption of the successful "Red Hat Business Model," that relies on integrating the end-user into an open product development process. Key principles incorporated into such a business model include a "first-to-market" philosophy, a highly responsive consumer feedback process, and a balanced reliance on product service and intellectual property protection for commercialization.

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